Amendments to the Claims

Please amend claims 1-3, 5-9, 11-13, 15 and 17-27, and cancel claims 4 and 16, as indicated below. The claims listing below replaces all previous listings.

- 1. (currently amended) A process for producing an aldehyde derivative of a sialic acid in which a starting material which is a di-, oligo- or poly-saccharide having a sialic acid unit at the reducing terminal and a terminal saccharide at the non-reducing end, which has a vicinal diol group, is subjected to the sequential steps of:
- a) preliminary selective oxidation to oxidise the vicinal diol group to an aldehyde
- b) reduction to reductively open the ring at the reducing terminal sialic acid unit, whereby a vicinal diol group is formed, and wherein the aldehyde formed in step a) is also reduced to form a hydroxy group which is not part of a vicinal diol group; and
- c) selective oxidation to oxidise the vicinal diol group formed in step b) to form an aldehyde group.
- 2. (currently amended) A process according to claim 1 in which the sialic acid unit at the reducing terminal is joined to the adjacent <u>sialic acid</u> unit through the 8 carbon atom whereby in step b) the 6,7 vicinal diol group is oxidised to form an aldehyde on the carbon-7 atom.
- 3. (currently amended) A process according to claim 1 or claim 2 in which the saccharide unit at the non-reducing end is a sialic acid unit.
- 4. (cancelled)
- 5. (currently amended) A process according to claim $\underline{1}$ [[4]] in which the polysaccharide is a polysialic acid consisting substantially only of units of sialic acid.

- 6. (currently amended) A process according to claim 5 in which the polysaccharide has at least 2, preferably at least 5 or more preferably at least 10, most preferably at least 50 sialic acid units in the molecule.
- 7. (currently amended) A process according to any of claims 4 to 6 claim 1 in which the said preliminary selective oxidation step is carried out under conditions such that there is substantially no mid-chain cleavage of the polysaccharide chair.
- 8. (currently amended) A process according to claim 7 in which the <u>said</u> preliminary <u>selective</u> oxidation step is carried out in aqueous solution in the presence of periodate at a concentration in the range 1 mM to 1M, a pH in the range 3 to 10, a temperature in the range 0 to 60°C and a time in the range 1 min to 48 hours.
- 9. (currently amended) A process according to any preceding claim 1 in which step b) is carried out under conditions such that pendent carboxyl groups on the starting material are not reduced.
- 10. (original) A process according to claim 9 in which step b) is carried out in aqueous solution in the presence of borohydride at a concentration in the range $1\mu M$ to 0.1M, a pH in the range 6.5 to 10, a temperature in the range 0 to $60^{\circ}C$ and a period in the range 1 min to 48 h.
- 11. (currently amended) A process for producing a derivatised substrate according to any preceding claim in which the process of claim 1 is carried out and then the said aldehyde derivative is reacted with a substrate having a primary amine group or a hydrazide group whereby the aldehyde group reacts with the primary amine or hydrazide group to form a conjugate product.
- 12. (currently amended) A process according to claim 11 in which the conjugate product is reduced.

- 13. (currently amended) A process according to claim 11 or claim 12 in which the substrate is a peptide or a protein.
- 14. (original) A process according to claim 13 in which the substrate is a peptide therapeutic.
- 15. (currently amended) A process according to claim 11 or claim 12 in which the substrate is a compound having a functional group substituent and a dibasic organic group joining the amine or hydrazide group and the functional group.
- 16. (cancelled)
- 17. (currently amended) A process according to claim 11 or 12 in which the substrate is a drug delivery system, a cell, preferably a microbial cell or an animal cell, a virus or a synthetic polymer.
- 18. (currently amended) A compound which is an aldehyde derivative of a di-, oligo or poly[[-]]saccharide comprising at least one sialic acid unit, and having two terminal units corresponding to the reducing and non-reducing terminal units of a polysaccharide in which the terminal unit at the reducing end includes an aldehyde moiety or is a group OR, in which R is selected from,

- CH₂CH₂NHR¹, CH₂CH=N-NHR¹ and CH₂CH₂NHNHR¹ in which R¹ is H, C₁₋₂₄-alkyl, aryl C₂₋₆-alkanoyl, or a polypeptide or a protein linked through the N terminal or the γ-

2667/111 WO05/016974

amine group of a lysine residue <u>thereof</u>, a drug delivery system or is an organic group having a functional substituent adapted for reaction with a sulfhydryl group and which has a passivated unit at the non-reducing <u>end terminal unit</u>.

19. (currently amended) A compound according to claim 18 which has general formula I

$$R^3 - \phi - Gly - \phi_n$$
 HO_2C
 O
 HC
 R^1
 R^2

in which R³ is H and R⁴ is OH each GlyO is a glycosyl group which may be the same or different, n is an integer of 1 or more and R is as defined in claim 18.

- 20. (currently amended) A compound according to elaim 18 or claim 19 which is a polysaccharide in which substantially all the saccharide units are all-GlyO groups are sialic acid groups, joined 2-8, 2-9 or alternating 2-8/2-9, to one another.
- 21. (currently amended) A compound according to claim 20 having at least 2, preferably at least 5, more preferably at least 10, most preferably at least 50 sialic acid units in the polysaccharide chain in which n is at least 5.
- 22. (currently amended) A compound according to any of claims 18 to 21 claim 18 in which R¹ is a protein or peptide or a drug delivery system.
- 23. (currently amended) A compound according to any of claims 18 to 22 claim 18 in which R is

 CHO

 CH₂OH
- 24. (currently amended) A compound according to any of claims 18 to 22 claim 18 in which R is CH₂-NHR¹.

 —CH
 CH₂OH

- 25. (currently amended) A compound according to claim 21 or claim 24 in which R¹ is a peptide or protein therapeutic preferably an antibody or fragment.
- 26. (currently amended) A compound according to any of claims 18 to 21 claim 18 in which R^1 is a group $-R^2N \xrightarrow{CO} \text{ in which } R^2 \text{ is a } C_{2-12}\text{-alkanediyl group.}$
- 27. (currently amended) A composition comprising a compound according to any of elaims 18 to 26 claim 18 and a diluent.
- 28. (original) A pharmaceutical composition comprising a compound according to claim
 21 or claim 25 and a pharmaceutically acceptable excipient.